

## REMARKS

The Examiner is thanked for the thorough examination of the present application, and the allowance of claims 1-7 and 12-22. The FINAL Office Action, however, continued to reject claims 8-11. Applicant respectfully request reconsideration and withdrawal of these rejections.

### Claim Objection

The Office Action objected to claim 12 for a noted informality. Applicant has amended claim 12 to address and overcome the objection. Applicant has also added the term "both" to claim 12, as recommended by the Examiner.

### Claim Rejections

The Office Action rejected claims 8-11 under 35 U.S.C. § 102(b) as allegedly anticipated by Kaneko (JP 09-153882). Applicant respectfully requests reconsideration and withdrawal of these rejections.

In this regard, the claimed embodiments define a system and method for estimating I/Q imbalance of a receiver by transmitting both the I and Q signals through only a single modulation path and receiving with the original "two" modulation paths. This is not taught by the cited reference. In this regard, the paragraph (of the present application), beginning on page 12, line 21 states:

It should be noted that the relation between the  $a_{k,i}$ ,  $a_{k,i}$ ,  $a_{k,q}$  and  $a_{k,q}$  is not necessarily limited to that described previously. The receiver I/Q

imbalance may be estimated only by transmitting the signal through the same modulation path **and the transmitter I/Q imbalance may be estimated only by receiving the signal through the same demodulation path**. However, this increases difficulty in baseband signal processing.

This aspect is clearly embodied in the claims. For example, claim 8 recites:

8. A method for transmitter I/Q imbalance estimation comprising the steps of:

transmitting a third signal modulated by a first modulated carrier through only a single first modulation path;

transmitting a fourth signal modulated by a second modulated carrier through only a single second modulation path, wherein the third signal and the fourth signal are symmetrical in the frequency domain;

receiving the third signal demodulated by a first demodulated carrier through a demodulation path;

**receiving the fourth signal demodulated by a second demodulated carrier through the demodulation path;** and

deriving an I/Q imbalance of the transmitter according to the demodulated third signal and the demodulated fourth signal.

(*Emphasis added*). Claim 8 patently defines over the cited art for at least the reasons that the cited art fails to disclose the features emphasized above.

As emphasized above, the received third signal and received fourth signal are both carried through the same demodulation path. The Office Action didn't cite a specific teaching of Kaneko as teaching this feature, but merely stated that "the receiver will receive the second signal in the same manner as the first signal." Applicant disagrees.

In Applicant's previous response, in distinguishing claim 1, Applicant noted that multipliers 43 and 44 were clearly on two distinct paths, such that the signal passing

through multiplier 43 could not pass through multiplier 44, and vice versa. That is, as can be seen from Drawing 5 of Kaneko, the I signal CANNOT pass through multiplier 44, nor can the Q signal pass through multiplier 43. As such, claim 1 clearly defined over Kaneko. The FINAL Office Action agreed that this position was persuasive.

Similarly, claim 8 specifies that the received third and forth signals are demodulated through the same demodulation path. However, Kaneko shows that the received signal is demodulated by multipliers 47 and 48, which (like multipliers 43 and 44) are clearly on two distinct paths. Therefore, claim 8 defines over Kaneko for at least this reason.

Insofar as claims 9-11 deped from claim 8, the rejections of these claims should be withdrawn for the same reasons. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

### **Conclusion**

In view of the foregoing, Applicant respectfully requests the Examiner's reconsideration of the application and the timely allowance of all pending claims. Applicant has made every effort to place the present application in condition for allowance. It is therefore earnestly requested that the present application, as a whole, receive favorable consideration and that all of the claims be allowed in their present form.

Should the Examiner feel that further discussion of the application and the Amendment is conducive to prosecution and allowance thereof, please do not hesitate to contact the undersigned at the address and telephone listed below.

No fee is believed to be due in connection with this submission. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to deposit account 20-0778.

Respectfully submitted,

/Daniel R. McClure/

By:

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